

**REMARKS**

**I. Introduction**

In response to the Office Action, Applicants respectfully submit that all pending claims are patentable over the cited prior art for the reasons set forth below.

Applicants appreciate the granting of an interview with the Examiner, which was held on June 10, 2008, during which arguments against the § 112 and § 103 rejections of claim 1 were discussed.

**II. The Rejection Of Claims 1-3 Under 35 U.S.C. § 112**

Claims 1-3 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, and under 35 U.S.C. § 112, second paragraph, as being indefinite. It was alleged that the limitations added to the claims in the previous amendment are not supported in the specification. Applicants traverse this rejection for at least the following reasons.

Applicants discussed this rejection with the Examiner during the interview and pointed out that the passages on page 4 which states “Co constituting a crystal structure of the lithium containing composite oxide...” does indeed support the amendment to claim 1, as it is clear that the lithium oxide is stated to have a crystal structure and that the lithium oxide is lithium cobaltate (as is shown on page 3, lines 16-26). Thus, these two passages show that the lithium-containing composite oxide has a structure of lithium cobaltate. As such, the combination of these two passages provides support for the amendment. During the interview, the Examiner agreed that the specification does support the amendments to claim 1.

**III. The Rejection Of Claims 1-3 Under 35 U.S.C. § 103**

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kweon et al. (USP No. 6,783,890) in view of Okamura et al. (JP 06-150929). Applicants respectfully traverse this rejection for at least the following reasons.

With regard to the present invention, claim 1 recites a lithium ion secondary battery comprising: a positive electrode including a positive electrode active material comprising a lithium-containing composite oxide, a conductive material and a binder; a negative electrode; and a non-aqueous electrolyte, wherein the lithium-containing composite oxide has a structure of lithium cobaltate where Co atoms are partially substituted by Na and/or K atoms.

As was pointed out during the interview, one feature of the present disclosure is the substitution of the Co atoms of the lithium-containing composite with Na and/or K. In addition, the added amount of Na and/or K in the Co site is very small and the range is narrow (0.0002 to 0.008) as compared to the added amount of Na and/or K in Okamura (0.3 or less). As a result, a battery of the present invention has superior positive electrode utilization rate and high temperature storage characteristics over that of Kweon and Okamura, because dissolving of Mg into the electrolyte during high temperature storage can be prevented.

In contrast to the present invention, Kweon fails to disclose a battery having Na or K. Okamura is relied upon to remedy this deficiency. However, Okamura discloses the substitution of Li with Na and K, not the substitution of Co with Na and K. Accordingly, even upon combining Kweon and Okamura, one could still not obtain the compound of claim 1 in which the Co is substituted with Na and K. As such, the combination of Kweon and Okamura fails to disclose the compound of claim 1.

Furthermore, there is no teaching or suggestion to replace the compound of Kweon, in which the amount of Li is maintained constant, with the compound disclosed in Okamura, in which Li is less than 1 when the value of Na or K is greater than 0, and therefore, not constant. Moreover, Okamura fails to disclose or suggest the effect of a high positive electrode utilization rate which is obtained by the narrow range of Na and/or K in the electrode. As is shown in Tables 3 and 4 of the present invention, which show how batteries of Examples 1-14 have superior positive electrode utilization values when compared with Comparative Examples 7 and 9, batteries in the ranged claimed by claim 1 show superior unexpected results over those outside the claimed range of Na and/or K.

In order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA1974). As Kweon and Okamura both fail to teach or suggest a lithium ion secondary battery comprising: a positive electrode including a positive electrode active material comprising a lithium-containing composite oxide, a conductive material and a binder; a negative electrode; and a non-aqueous electrolyte, wherein said lithium-containing composite oxide has a structure of lithium cobaltate where Co atoms are partially substituted by Na and/or K atoms, it is submitted that Kweon and Okamura, alone or in combination, do not render claim 1 obvious.

Furthermore, as is well known, an applicant can rebut a presumption of obviousness based on a claimed invention that falls within a prior art range by showing...that there are new and unexpected results relative to the prior art." *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322, 73 USPQ2d 1225, 1228 (Fed. Cir. 2004). As the claimed range shows unexpected results that are superior to the range claimed by the prior art, as indicated in Tables 3 and 4, Applicants submit that claim 1 is allowable over the cited prior art.

**IV. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable**

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

**V. Rejection Of Claims 1-3 Under Nonstatutory Double Patenting Doctrine**

Claims 1 and 2 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3 of Okochi et al. (USP No. 7,150,942) in view of Okamura et al. (JP 06-150929). In addition, claim 3 has been rejected under obviousness-type double patenting as being unpatentable over claims 1 and 3 of Okochi in view of Okamura and Yoon et al. (USP No. 6,482,547). The Examiner alleges that the teachings of Okamura cited above combined with Okochi and Yoon renders the present invention obvious.

However, similar to the arguments as set forth above for the § 103 rejections, Okamura discloses the substitution of Li with Na and K, not the substitution of Co with Na and K. Nor do Okochi and Yoon remedy this deficiency. As such, the combination of Okochi, Okamura and Yoon fails to teach or suggest claims 1-3 of the present disclosure. Accordingly, Applicants respectfully request that the non-statutory obviousness-type double patenting rejection of claims 1-3 be withdrawn.

**VI. Conclusion**

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Michael E. Fogarty  
Registration No. 36,139

600 13<sup>th</sup> Street, N.W.  
Washington, DC 20005-3096  
Phone: 202.756.8000 MEF:NDM  
Facsimile: 202.756.8087  
**Date: June 17, 2008**

**Please recognize our Customer No. 53080  
as our correspondence address.**